

Amendments to the Claims

This listing of the claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended): A network for implementing localized roaming of mobile subscribers, comprising: ~~a Base Transceiver Station-BTS, a Base Station Controller BSC, a Mobile Switching Center (MSC), a Visiting Location Register (VLR) and a Home Location Register (HLR);~~ and wherein further comprises at least a one Roaming Number Manager (RNM);

wherein said Roaming Number Manager RNM, connected with the HLR in the home network and an MSC/VLR in a contracted roaming network, is used to and manages mobile phone numbers in the home network region and the local mobile phone numbers in the contracted roaming network region; said RNM takes the collection of obtained the local mobile phone numbers in the contracted roaming regions network as a resource pool, and allocates the mobile phone numbers in the contracted roaming network region to roaming subscribers roaming in the contracted roaming network dynamically through the MSC/VLR in the contracted roaming network.

2. (currently amended): ~~A The network for implementing localized roaming of mobile subscribers according to claim 1, wherein said Roaming Number Manager RNM is embedded in said Home Location Register HLR.~~

3. (currently amended): A method for implementing localized roaming of mobile subscribers based on the network of claim 1, comprising:

a. configuring the RNM with local mobile phone numbers in the contracted roaming region/network, an independent PSTN/ISDN (Public Switched Telephone Network/Integrated Service Digital Network (PSTN/ISDN) number and a signaling point code;

b. configuring data in ~~the~~ entities of the contracted roaming ~~region/network~~ and ~~entities~~ that of the home network, so that the subscriber location ~~inquiry~~ query message taking ~~a the~~ local number in the subscriber's roaming ~~region/network~~ as the destination address will be directed to the RNM in the ~~subscriber's~~ home network;

c. establishing interfaces between the RNM and entities of the contracted roaming ~~region/network~~ as well as between the RNM and entities of the home network;

d. ~~the subscriber utilizing~~ developing communication services in the roaming network based on the configuration in respective entities of the contracted roaming ~~region/network~~ and the home network ~~to develop communication services in the roaming region/network~~, implementing localized roaming of the subscriber.

4. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 3, wherein said step c comprises:

c1. establishing an interface between the RNM and an MSC in the roaming network;

c2. establishing an interface between the RNM and the HLR in the home network.

5. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 3, wherein said step d comprises a subscriber location update process:

d1. sending a location update request from the Visiting Location Register-VLR at which currently serving the subscriber is registered ~~currently sends a location update request to the HLR in the subscriber's-home~~ network ~~region~~;

d2. according to the location update request received from the VLR and the subscriber's current location of the subscriber, ~~the HLR in the subscriber's home region~~ addressing the RNM corresponding to the subscriber's current location of the subscriber through the RNM's PSTN/ISDN number of RNM and informing the RNM of the subscriber location update, by the HLR in the home network;

d3. ~~the RNM allocating a mobile phone number, i.e., by the RNM~~ a local mobile phone number in the roaming ~~region/network~~, to the subscriber, and returning said number ~~in the roaming region/network to the HLR in the -home~~ network ~~region~~;

d4. ~~the HLR in the subscriber's home region~~ inserting said local mobile phone number in the roaming ~~region/network~~ into the VLR ~~at which~~ currently serving the subscriber ~~is registered currently~~, and returning an acknowledgement message of obtaining said number in the roaming ~~region/network~~ to the RNM, by the HLR in the home network.

6. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 5, wherein ~~in the~~ step d3, before allocating a local mobile phone number to the subscriber, further comprises: determining by the RNM determines whether the roaming region where the subscriber's ~~mobile phone~~ is roaming is a contracted roaming region; if so, ~~RNM allocates~~ allocating one from the available numbers in the contracted roaming networkregion and ~~feedings it~~ the allocated number back to HLR in the home ~~regionnetwork~~ by the RNM; otherwise ~~RNM feedings the mobile phonesubscriber's number of the subscriber in the original-home networkregion~~ to HLR in the home networkregion.

7. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 6, wherein ~~said method also comprises: when receiving an incoming call or initiating an outgoing call, the subscriber's mobile phone is processed the call utilizing by using~~ the number fed back from RNM in the subscriber's-home networkregion.

8. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 5, ~~wherein in step d2, further comprising: informing the subscriber is informed of the allocated numberlocation update~~ by voice, short message or Unstructured Supplementary Service Data (USSD).

9. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 7, wherein the call is processed utilizing by using the number fed back from RNM in the subscriber's-home networkregion in the following manner: when ~~serving acting~~ as the caller, the subscriber's ~~mobile phone~~ uses the number

fed back from the RNM in the ~~subscriber's-home networkregion~~ to initiate a call; when the subscriber's ~~mobile phone serves acts~~ as the called ~~party~~, if the called number is the mobile phone number in ~~subscriber's-home networkregion~~, ~~the~~ MSC in the ~~subscriber's home networkregion~~ ~~inquires-queries~~ HLR in the ~~subscriber's-home region for network~~ to ~~determine~~ the calling route, ~~the~~ HLR finds the corresponding subscriber record, obtains address of VLR ~~where currently serving the subscriber is roaming~~, and accesses said VLR to obtain ~~routing information~~ ~~the calling route~~, with which ~~the~~ HLR instructs ~~the~~ MSC in the ~~subscriber's-home networkregion~~ to establish a calling route; if the called number is a local mobile phone number in a roaming region, ~~the~~ MSC in the ~~subscriber's roaming networkregion~~ ~~inquires-queries~~ RNM ~~for about the calling route information~~ ~~information~~, ~~the~~ RNM finds the subscriber identifier, ~~then inquires-queries~~ the ~~subscriber's-HLR for about the calling route information in accordance~~ with the subscriber's identifier, and forwards the ~~calling route information~~ ~~routing information~~ returned ~~form-from~~ HLR to ~~the~~ MSC in the ~~subscriber's-roaming networkregion~~.

10. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 5, ~~6, 7, 8 or 9, wherein said method also comprises~~ ~~further comprising~~: when the subscriber's ~~mobile phone~~ leaves the contracted roaming ~~networkregion~~, the Home Location Register (HLR) in the ~~subscriber's-home networkregion~~ informs the Roaming Number Manager (RNM) in the ~~subscriber's home region~~ of the subscriber location update, the RNM in the ~~subscriber's home region~~ releases the ~~local~~ mobile phone number, occupied by the subscriber, in the ~~old-roaming region~~ ~~network~~, and breaks the mapping between the number and the subscriber.

11. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 10, ~~wherein said method also comprises~~ ~~further comprising~~: binding the ~~local mobile phone number~~ in the contracted roaming ~~networkregion~~ to a ~~certain~~ ~~the~~ subscriber.

12. (currently amended): The method for implementing localized roaming of mobile subscribers ~~as in~~ ~~according to~~ claim 5, wherein ~~it is according to the subscriber's IMSI~~

~~(International Mobile Subscriber identifier)~~ that said VLR in step d1 addresses the HLR in the subscriber's home networkregion in accordance with International Mobile Subscriber Identifier (IMSI) of the subscriber.

13. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 5, wherein the information carried in the location update request sent from VLR to HLR in step d1 and the parameters carried in the location update informed from HLR to RNM in step d2 comprise: the subscriber's-IMSI of the subscriber and/or the mobile phone number in the home networkregion, the subscriber's-current location of the subscriber ~~information and the subscriber's old location of the subscriber~~.

14. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 5 ~~or 12~~, wherein the subscriber location update process also comprises:

d5. ~~the HLR in the home region informing the RNM corresponding to~~reserving the subscriber's old location of the subscriber by the HLR in the home region; ~~said information to RNM containing the subscriber's old location information~~;

d6. if there is no binding relation between the subscriber and the local mobile phone number occupied by the subscriber, ~~RNM-releasing said local mobile phone number occupied by the subscriber~~ by the RNM;

d7. ~~RNM sends~~ sending a response from the RNM to the HLR in the home networkregion.

15. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 5 ~~or 12~~, wherein the subscriber location update process also comprises:

~~After receiving an acknowledgement for subscriber data insertion from VLR, HLR sending an message acknowledgement for number allocation from the HLR to the RNM in the region where~~reserving the current location of the subscriber, after receiving an

~~acknowledgement for subscriber data insertion from the VLR stays currently to acknowledge the number receipt.~~

16. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 5 ~~or~~ 12, wherein the subscriber location update process also comprises: if not receiving the acknowledgement for number allocation from the HLR for a determined period, the RNM will release the allocated number.

17. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 3, wherein said step d comprises a process for calling the subscriber with the subscriber's local mobile phone number in the roaming region/network; said process comprising the following steps:

d8. when the call is made to the subscriber initiated with the called subscriber's local mobile phone number in the roaming region/network, ~~a GMSC in the roaming region/network~~ initiating a route inquiry query from a GMSC in the roaming network to the RNM in the region where currently serving the subscriber stays;

d9. after receiving the query inquiry request, the RNM inquiring searching for the subscriber ~~information identifier~~ according to the local mobile phone number in the roaming network region, and inquiring querying HLR in home network region for about the calling route in accordance with the subscriber's identifier;

d10. ~~the HLR in the home region~~ returning the inquiry query result from the HLR in the home network to the RNM, which sends an acknowledgement for route inquiry query to the GMSC and instructings the GMSC to establish the route with the number obtained from the HLR.

18. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 3, wherein said step d also comprises a process for calling the subscriber with the mobile phonesubscriber's number in the home network; said process comprising the following steps:

d11. when the call is ~~initiated with the called subscriber's number~~made to the subscriber by using the mobile phone number in the home network, initiating a route

~~query from a GMSC in the home network to a GMSC in the home region inquiring for the route in the HLR in the subscriber's home network region;~~

d12. ~~after receiving the query inquiry request, the HLR in the home region finding its VLR number according to the subscriber's number in the home region/network, requesting the VLR at which currently serving the subscriber is registered to allocate a roaming temporary routing number according to the mobile phone number of the subscriber in the home network by the HLR in the home network;~~

d13. ~~the VLR at which the subscriber is registered allocating, by the VLR currently serving the subscriber, a roaming a temporary routing number to the subscriber, and returning said temporary routing number to the HLR in the home network;~~

d14. ~~the HLR in the subscriber's home region sending an acknowledgement for route inquiry query from the HLR in the home network to the GMSC in the subscriber's home network region, and instructing the GMSC to establish the a route with the allocated temporary routing roaming number.~~

19. (currently amended): ~~The~~A method for implementing localized roaming of mobile subscribers according to claim 3, wherein said step d also comprises a process of sending a short message to the ~~subscriber's~~ subscriber with the local mobile phone number in the roaming region/network; said process in detail comprising the following steps:

d15. ~~the Short Message Service Center SC sending a short message from a Short Message Service Center (SC) to a Short Message Service Gateway Mobile Switching Center SMS (GMSC), which initiates a route inquiry query to the RNM;~~

d16. on receiving the ~~query inquiry request, RNM inquiring searching for the subscriber information identifier according to the local mobile phone number in the roaming network region, and inquiring querying the HLR in subscriber's the home network region for about~~ the route with the subscriber's identifier, by the RNM;

d17. ~~HLR returning the MSC number or the a Service GPRS Supporting Node (SGSN) number where currently serving the subscriber stays currently from the HLR in the home network to the RNM;~~

d18. ~~RNM sending an acknowledgement for route inquiry query from the RNM to the SMS GMSC, to instruct the route for the short message with the MSC number or the~~

SGSN number obtained from the HLR in the home network, and ~~SMS-GMSC~~ issuing the short message by the SMS GMSC.